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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,433	11/29/2000	Kuniyuki Kajita	L9289.00121	9782

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EXAMINER	
CHUNG, PHUNG M	
ART UNIT	**PAPER NUMBER**
2133	

DATE MAILED: 11/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/701,433	KAJITA, KUNIYUKI	
	Examiner	Art Unit	
	Phung My Chung	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-13,19-25 and 31-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-13,19-25 and 31-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Responsive to communication filed on 10/28/04. This office action is made non-final because of the new found prior arts, and the finality of the office action of 10/6/04 is hereby withdrawn.

2. Drawings (Dated on 11/29/00):

Figures 1(A), 1(B) and 2 should be labeled with –Prior Art—(For example: Fig. 1(A) should be changed to –Fig. 1(A) Prior Art--). A correction is required.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 11, 13, 19, 21-22, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang ("Asymptotic Performances of Non-repetitive and repetitive Turbo Codes" 1997, IEEE, pgs. 48-53) in view of Frenger et al ("Rate Matching in Multi-channel Systems using RCPC-Codes" 1997, IEEE, pgs. 35357).

As per claims 11, 13, 21-22, 36 and 38, Wang discloses the invention substantially as claimed, comprising: an interleaver that performs interleaving of input data including a plurality of bits;

A rate matcher comprises a repeater for repeating a part of the bits interleaved by the interleaver. (See pg. 51, section 4. Repetitive Turbo Code). Wang does not disclose a puncturer to puncture a part of the bits interleaved by the interleaver. However, Frenger et al disclose a rate matching comprises a repeater and a puncturer, wherein the rate matcher alternatively selects between (i) the repeater and (ii)

puncturer. (See Abstract, pg. 354, col. 2, section II. RCPC-Codes for Rate Matching). Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate the rate matcher including a repeater and a puncturer, wherein the rate matcher alternatively selects between (i) the repeater and (ii) puncturer as taught by Frenger et al into the invention of Wang to provide a larger span of available channel coding rates, a flexible coding scheme suitable for future mobile radio communication systems.

As per claim 19, this method claim is also rejected under the same rationale as set forth in system claim 1.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang ("Asymptotic Performances of Non-repetitive and repetitive Turbo Codes" 1997, IEEE, pgs. 48-53) in view of Frenger et al ("Rate Matching in Multi-channel Systems using RCPC-Codes" 1997, IEEE, pgs. 35357) as applied to claims 11 and 13 above, and further in view of Chen et al (6,199,186).

As per claim 12, the teaching of Wang and Frenger et al had been discussed above. They do not specifically disclose a coder that performs error correction coding of the input data to provide error correction coded data, wherein, after the error correction coding by the coder, the interleaver performs the interleaving of the error correction coded data. However, Chen et al disclose a coder that performs error correction coding of the input data to provide error correction coded data, wherein, after the error correction coding by the coder, the interleaver performs the interleaving of the error correction coded data. (See Fig. 1, col. 4, lines 6-24, and col. 9, lines 57-59).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate a coder that performs error correction coding of the input data to provide error correction coded data, wherein, after the error correction coding by the coder, the interleaver performs the interleaving of the error correction coded data as taught by Chen et al into the invention of Wang and Frenger et al so that it would be able to further examine, or screen, the sequence that were found to satisfy an error code but which may contain an error undetected by either an error correction code, an error detection code or a combined error correction/detection code.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 23, 25, 31, 33-34, 41 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang ("Asymptotic Performances of Non-repetitive and repetitive Turbo Codes" 1997, IEEE, pgs. 48-53).

As per claims 23, 25, 33-34, 41 and 43, Wang discloses the invention substantially as claimed, comprising:

An interleaver that performs interleaving of input data including a plurality of bits; and

A rate matcher that repeats a part of bits interleaved by the interleaver. (See pg. 51, col. 1, lines 1-41.

As per claim 31, this method claim is also rejected under the same rationale as set forth in system claim 23.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang ("Asymptotic Performances of Non-repetitive and repetitive Turbo Codes" 1997, IEEE, pgs. 48-53) in view of Chen et al (6,199,186).

As per claim 24, the teaching of Wang has been discussed in claim 23, Wang does not specifically disclose a coder that performs error correction coding of the input data to provide error correction coded data, wherein, after the error correction coding by the coder, the interleaver performs the interleaving of the error correction coded data. However, Chen et al disclose a coder that performs error correction coding of the input data to provide error correction coded data, wherein, after the error correction coding by the coder, the interleaver performs the interleaving of the error correction coded data. (See Fig. 1, col. 4, lines 6-24, and col. 9, lines 57-59). Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate a coder that performs error correction coding of the input data to provide error correction coded data, wherein, after the error correction coding by the coder, the interleaver performs the interleaving of the error correction coded data as taught by Chen et al into the invention of Wang so that it would be able to further examine, or screen, the sequence that were found to satisfy an error code but which may contain an error undetected by either an error correction code, an error detection code or a combined error correction/detection code.

9. Claims 20, 35, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang ("Asymptotic Performances of Non-repetitive and repetitive Turbo Codes" 1997, IEEE, pgs. 48-53) in view of Frenger et al ("Rate Matching in Multi-channel Systems using RCPC-Codes" 1997, IEEE, pgs. 35357) as applied to claims 11, 19 and 22 above, and further in view of the applicant's admitted prior art.

The teaching of Wang and Frenger et al had been discussed above. They do not disclose the steps of:

Employing a second rate matcher that comprises a second repeater and a second puncturer to alternatively select between second repeater and second puncturer...; and

Performing deinterleaving of data including bits provided by the second rate matcher. However, the admitted prior art does teach the steps of Employing a second rate matcher that comprises a second repeater and a second puncturer to alternatively select between second repeater and second puncturer...; and

Performing deinterleaving of data including bits provided by the second rate matcher. (See Pgs 1-4 and Figs. 1(A) and 1(B)). Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate the steps of: Employing a second rate matcher that comprises a second repeater and a second puncturer to alternatively select between second repeater and second puncturer...; and

Performing deinterleaving of data including bits provided by the second rate matcher as taught by the admitted prior art into the invention of Wang and Frenger et al in order to adjust coded data to frame length.

10. Claims 32, 40, 42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang ("Asymptotic Performances of Non-repetitive and repetitive Turbo Codes" 1997, IEEE, pgs. 48-53) as applied to claims 23, 31 and 34 above, and further in view of the applicant's admitted prior art.

The teaching of Wang has been discussed above, Wang does not disclose the steps of: Employing a second rate matcher that comprises a second repeater and a second puncturer to alternatively select between second repeater and second puncturer...; and

Performing deinterleaving of data including bits provided by the second rate matcher. However, the admitted prior art does teach the steps of Employing a second rate matcher that comprises a second repeater and a second puncturer to alternatively select between second repeater and second puncturer...; and

Performing deinterleaving of data including bits provided by the second rate matcher. (See Pgs 1-4 and Figs. 1(A) and 1(B)). Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate the steps of: Employing a second rate matcher that comprises a second repeater and a second puncturer to alternatively select between second repeater and second puncturer...; and

Performing deinterleaving of data including bits provided by the second rate matcher as taught by the admitted prior art into the invention of Wang in order to adjust coded data to frame length.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phung My Chung whose telephone number is 571-272-3818. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on Monday to Friday and the telephone number is 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phung My Chung
Primary Patent Examiner
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